

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 05 SEP 2005

PCT

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To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2005/020091

International filing date (day/month/year)
07.06.2005

Priority date (day/month/year)
29.07.2004

International Patent Classification (IPC) or both national classification and IPC
H04B7/26

Applicant
QUALCOMM INCORPORATED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office - P.B. 5818 Patentlaan 2
NL-2280 HV Rijswijk - Pays Bas
Tel. +31 70 340 - 2040 Tx: 31 651 epo nl
Fax: +31 70 340 - 3016

Authorized Officer

Dejonghe, O

Telephone No. +31 70 340-2008



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2005/020091

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*b*/s.1 and 64.1) is the claimed priority date.
2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*b*/s.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2005/020091

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-34
	No: Claims	
Inventive step (IS)	Yes: Claims	1-34
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-34
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

- 1 Reference is made to the following documents:
D1 : US 6 501 955 B1 (DURRANT RANDOLPH L ET AL) 31 December 2002 (2002-12-31)
D2 : US 2002/028655 A1 (ROSENER DOUGLAS K ET AL) 7 March 2002 (2002-03-07)

- 2 Document D1, which is considered to represent the most relevant state of the art, discloses (the references in parentheses applying to this document):

A wireless repeater comprising a watermarking module (col. 3, lines 13-21; fig. 2) configured to selectively apply a watermark (col. 9, lines 32-35) to at least one channel in a repeater operating band, a receiver configured to receive a wireless transmission (fig. 2).

From this, the subject-matter of independent claim 1 differs in that:

The receiver is further configured to determine an airlink corresponding to at least a portion of the wireless transmission and generate a control signal base in part on the airlink, said control signal being used to control the selective application of the watermark.

- 2.1 The subject-matter of claim 1 is therefore novel (Article 33(2) PCT)

The problem to be solved by the present invention may be regarded as:

how to reduce the degradation in signal quality resulting from the watermarking?

- 2.2 The solution to this problem proposed in claim 1 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

In D1, it has been acknowledged that some watermarking techniques have detrimental effect on the relayed signal (col. 5, lines 31-35). However D1 does not disclose a repeater suitable for multiple airlinks.

In D2, a repeater suitable for multiple airlinks is disclosed. The airlink is determined based on at least a portion of the wireless transmission (claim 56), however, this airlink determination is used to select some suitable hardware block in the repeater and not for watermarking purposes.

The man in the art would therefore not be incited to combine D1 and D2, and if he would, the combination of D1 and D2 would still not lead to the wireless repeater of claim 1.

- 3 Claims 2-15 are dependent on claim 1 and as such also meet the requirements of the PCT with respect to novelty and inventive step.
- 4 The same reasoning applies, *mutatis mutandis*, to the subject-matter of the corresponding independent claims 16, 19, 30, 31, 32, 33 and 34, which therefore are also considered new (Article 33(2) PCT) and inventive (Article 33(3) PCT).
- 5 Claims 17 and 18 are dependent on claim 16 and as such also meet the requirements of the PCT with respect to novelty and inventive step.
- 6 Claims 20-29 are dependent on claim 19 and as such also meet the requirements of the PCT with respect to novelty and inventive step.